

ISSN: 1576-0162

NECESSITY AND OPPORTUNITY ENTREPRENEURSHIP: THE MEDIATING EFFECT OF CULTURE

EMPRENDIMIENTO POR NECESIDAD Y POR OPORTUNIDAD: EL EFECTO MEDIADOR DE LA CULTURA

Francisco Liñán
University of Seville
flinan@us.es

José Fernández-Serrano
University of Seville
jfserrano@us.es

Isidoro Romero
University of Seville
isidoro@us.es

Recibido: octubre de 2012; aceptado: enero de 2013

ABSTRACT

This paper studies the mediating role of cultural values in explaining the total entrepreneurial activity (TEA) and the entrepreneurs' motivation -differentiating opportunity versus necessity motives- in countries with different levels of development. Data for 56 countries coming from the Global Entrepreneurship Monitor (GEM) and the Schwartz Value Survey (Schwartz, 1994, 2006b) are analysed using structural equations modelling. The results show that only in higher income countries do Autonomy values boost entrepreneurial activity. Additionally, higher entrepreneurship is found in countries where Egalitarianism predominates, and the effect becomes stronger as income level rises. Furthermore, the Egalitarianism-Hierarchy dimension is also very relevant in explaining the opportunity/necessity ratio.

Keywords: Entrepreneurship; Cultural Values; Economic Development; Entrepreneurial Motivation.

RESUMEN

Este trabajo estudia el efecto mediador de los valores culturales sobre la actividad emprendedora total (TEA) y la motivación de los emprendedores -diferenciando el motivo oportunidad frente al motivo necesidad- en países con niveles diferentes de desarrollo. Los datos de 56 países del Global Entrepreneurship Monitor (GEM) sobre actividad emprendedora y de la Schwartz Value Survey (1994, 2006b) se analizan usando modelos de ecuaciones estructurales. Los resultados muestran que sólo en los países de ingresos altos, el valor Autonomía impulsa la actividad emprendedora. Además, existen mayores niveles de emprendimiento en los países donde predomina el Igualitarismo, y ese efecto es más intenso conforme la renta se eleva. Es más, la dimensión cultural Igualitarismo-Jerarquía también es muy relevante en la explicación del ratio de emprendedores por oportunidad/necesidad.

Palabras clave: Actividad emprendedora; Valores culturales; Desarrollo económico; Motivación empresarial.

JEL Classification: A13, L26, R11

1. INTRODUCTION

The relationship between the economic development level and the entrepreneurial activity rate has received considerable attention in the literature. However, the attempts to explain the differences in the level of entrepreneurial activity between countries have not been completely successful. Previous research in this respect has found a U-shaped relationship between economic activity and entrepreneurship (Carree, van Stel, Thurik and Wennekers, 2002; Sternberg and Wennekers, 2005; Wennekers, van Stel, Thurik and Reynolds, 2005). Above a certain level of per capita GDP, which some authors set around US\$ 7000 (Pinillos and Reyes, 2011), increased income leads to higher start-up rates. The reason may be that wealthier countries have a more complex economic system and also a greater demand for new and differentiated consumer goods, both leading to increased opportunities (Shane, 1993).

Furthermore, the entrepreneurs' motivations change throughout the development process. In this sense, the Global Entrepreneurship Monitor (GEM) has discussed two rather different types of entrepreneurship, namely Improvement-Driven Opportunity Entrepreneurial Activity and Necessity-Driven Entrepreneurial Activity (Reynolds, Bygrave, Autio and Hay, 2002; Reynolds, Storey and Westhead, 1994). New ventures founded by opportunity entrepreneurs can be expected to have much stronger positive long-run effects on the economy in terms of employment, innovation and growth than start-ups initiated by necessity entrepreneurs. Besides, the ratio of opportunity to necessity entrepreneurship seems to be higher in countries with higher per capita income (Wennekers et al., 2005).

However, countries with similar development levels present persistent differences in their levels of entrepreneurship (Pinillos and Reyes, 2011; van Stel, Carree and Thurik, 2005). Similarly, country differences in the relative importance of the necessity-driven versus opportunity-driven entrepreneurship cannot be fully explained by economic variables alone (Davidsson and Wiklund, 1997; Frederking, 2004). In this sense, the OECD (1998) recognises that en-

trepreneurship is the result of three dimensions working together: conducive framework conditions, well-designed government programmes and supportive cultural attitudes. The focus of this paper is on the role of the latter. The societal value structure that shapes culture may play a significant role in determining the entrepreneurial activity of its members. Similarly, it may also help to explain the relative presence of opportunity and necessity entrepreneurs. Nevertheless, the mechanisms through which these effects are exerted are far from clear. Though a number of contributions have already stressed the influence of culture on entrepreneurship (Davidsson, 1995; Davidsson and Wiklund, 1997; Frederking, 2004), so far, research on this topic has been limited.

This paper aims to fill this gap in the literature by analysing the complex relationship between development, culture and entrepreneurship. Specifically, the paper proposes a theoretical framework in which cultural values act as a mediating factor in the relationship between economic development (in terms of GDP per capita) and entrepreneurial activity. This mediating role of culture also implies an interaction effect between cultural values and per capita income. The empirical analysis tests this core hypothesis using data from 56 countries.

This paper is organised as follows: after this introduction, the next section outlines the relevant theory and the hypotheses derived from it. Section 3 describes the empirical analysis and presents the results, which are further discussed in Section 4. The paper ends with a brief conclusion section.

2. THEORY AND HYPOTHESES

In this section, the relationship between economic development and entrepreneurship will be briefly considered. After that, the operationalisation of culture and its role in economic development and entrepreneurship is studied. The research hypotheses are presented throughout the section.

2.1. ECONOMIC DEVELOPMENT AND ENTREPRENEURSHIP

Entrepreneurship plays a very important role in the process of economic development. It increases employment opportunities, enhances technical innovation level, and promotes economic growth (Audretsch and Fritsch, 1999; Fritsch and Mueller, 2004; Reynolds et al., 2002; van Stel and Storey, 2004). From a dynamic perspective, entrepreneurs are agents of change since entrepreneurship implies starting new businesses, experimenting with new techniques and a new organization of production, introducing new products or even creating new markets (Wennekers, Uhlaner and Thurik, 2002).

Minniti, Bygrave and Autio (2006) and Lee and Peterson (2000) found the income level to have an effect on the level of entrepreneurial activity. In particular, the rate of growth in income has been found to have an influence on en-

trepreneurship rates (Armington and Acs, 2002; Lee, Florida and Acs, 2004). Similarly, the income level, if measured as per capita GDP, has a positive effect on entrepreneurship as well, at least for industrialised economies (Fishman and Sarria-Allende, 2004; Parker and Robson, 2004). Economic development induces new firm formation since opportunities and expected rewards of starting a business are higher (Carree et al., 2002; Reynolds et al., 1994). Further, the level of income and wealth determines the variety of consumer demand. A high differentiation in demand favours the suppliers of new and specialised products and diminishes the scale advantages of large incumbent firms (Jovanovic, 1993; Wennekers et al., 2002).

However, development is generally accompanied by an increase in real wages, thus raising the opportunity costs for self-employment. Consequently, growth in GDP per capita could reduce entrepreneurial activity (Bjornskov and Foss, 2006; Noorderhaven, Thurik, Wennekers and van Stel, 2004). In this sense, some authors (van Stel, Wennekers, Thurik and Reynolds, 2003; Verheul, Wennekers, Audretsch and Thurik, 2002) have found a significant negative effect of GDPpc, together with a significant positive effect of squared GDPpc, suggesting a U-shaped impact of income on entrepreneurship. Thus, for higher levels of income, a positive relationship between GDPpc and entrepreneurship should be expected.

The GEM project also shows that the motivations to start new ventures differ vastly across countries. It is important to consider the entrepreneurs' motivation because it influences their behaviour before and after starting up (Kuratko, Hornsby and Naffziger, 1997). The type and strength of individual entrepreneurial motivation may determine the goals and aspirations of the firm, leading to different macroeconomic outcomes (Fernández-Serrano and Romero, 2012; Fernández, Liñán and Santos, 2009; Hessels, Van Gelderen and Thurik, 2008).

GEM's classification differentiates between 'necessity' and 'opportunity' motivations (Reynolds et al., 2002). Opportunity entrepreneurs are viewed as entrepreneurs who start a business in order to pursue an opportunity in the market, whilst necessity entrepreneurs are pushed by unemployment situations or dissatisfaction with their previous jobs. In comparison with necessity entrepreneurs, opportunity entrepreneurs have usually prepared their entry into self-employment on a more solid basis and they start their businesses in an area of their particular expertise. These factors lead to a longer survival rate and a higher business growth in the case of opportunity entrepreneurs. They also have higher growth aspirations (Wennekers et al., 2005). Thus, countries with a low ratio of opportunity to necessity entrepreneurs tend to have weaker firms as well (Reynolds et al., 2002; Wennekers et al., 2005).

Entrepreneurs in factor-driven economies tend to be equally motivated by necessity and improvement-driven opportunity motives (Gries and Naude, 2008). In contrast, in more developed economies, necessity gradually falls off as a motivator, while improvement-driven opportunity motives increase (Wen-

nekers et al., 2005). That is, necessity motives are more dependent on economic conditions. Meanwhile, improvement-driven opportunity motives are less dependent on the economic environment and have a more intrinsic nature, such as the desire for independence or self-realisation.

In this paper, economic development will be approached considering the average income level. Based on the theory reviewed above, the following hypotheses - referring to the relationship between economic development and entrepreneurship - are formulated to be tested in the empirical analysis:

- H1a: The rate of Total Entrepreneurial Activity is negatively correlated to GDP per capita: higher income is associated with lower entrepreneurship rates.*
- H1b: The ratio of opportunity to necessity entrepreneurship is positively correlated to GDP per capita: higher income is associated with a higher ratio of opportunity to necessity entrepreneurship.*

2.2. ECONOMIC DEVELOPMENT, CULTURE AND ENTREPRENEURSHIP

Inglehart (1997) defines culture as the set of basic common values which contributes to shaping people's behaviour in a society. Cultural values operate unconsciously, since they are deeply rooted within the political institutions and technical systems. Therefore, these values and beliefs are continuously reinforced (Pinillos and Reyes, 2011). Culture shapes the individual's cognitive schemes, programming behavioural patterns consistent with the cultural context (Hofstede, 1991, 2003).

Culture may influence entrepreneurship through two main mechanisms (Davidsson, 1995). Firstly, a supportive culture would lead to social legitimisation, making the entrepreneurial career more valued and socially recognised in that culture, thus creating a favourable institutional environment. Therefore, more people will try to start their ventures, irrespective of their personal beliefs and attitudes (Etzioni, 1987). Secondly, a culture sharing more pro-entrepreneurial values and patterns of thinking would lead to more individuals showing psychological traits and attitudes consistent with entrepreneurship (Krueger, 2000, 2003; Liñán, Santos and Fernández, 2011). Thus, more people will try to become entrepreneurs (Mcgrath, MacMillan, Yang and Tsai, 1992; Mueller and Thomas, 2001). In this sense, it has been suggested that a high perceived valuation of entrepreneurship in a society will lead to more positive attitudes and intentions by individuals (Krueger and Carsrud, 1993; Liñán, Urbano and Guerrero, 2011).

The first and most common classification of cultures distinguishes between individualist and collectivist ones (Hofstede 1980; Triandis 1995; Schwartz 1999). However, alternative characterisations have also been made. From an empirical point of view, Hofstede's cultural dimensions (Hofstede, 1980, 1991, 2003) have often been used as a reference in research works about the influence of culture on entrepreneurship (Hayton, George and Zahra, 2002; Liñán and

Chen, 2009; Mcgrath and MacMillan, 1992; Mitchell, Smith, Seawright and Morse, 2000; Mueller and Thomas, 2001; Mueller, Thomas and Jaeger, 2002; Shane, Kolvereid and Westhead, 1991). Results have confirmed its influence on national start-up rates, innovation or entrepreneurial intentions. However, Hofstede's measures have been criticised for their methodological weaknesses (Jabri, 2005; Tang and Koveos, 2008).

An alternative approach to culture has been proposed by Schwartz (1990). According to Schwartz (1990), values shape the individual's motivational goals. A circular structure of values is proposed (see Figure 1), representing the dynamic relationships between values according to principles of compatibility and logical contradiction. Following this circular structure, the pursuit of adjacent values is compatible, whilst the pursuit of opposing values would generate conflict (Schwartz, 1999, 2004, 2006b).

In the present study, Schwartz's theory will be followed. This considers cultural values as averaged individual values (Schwartz, 1994, 1999, 2004, 2006b). This theory is strongly based on a universal system of values that guide human behaviour. Specific cultural contexts make some of its aspects prevail over others (Schwartz, 2006a, 2008). This mechanism works through social institutions and their actions (through legislation, government directives, the education system, etc.), selecting and prioritising some values instead of the others. In this sense, people tend to carry out what they believe is socially appropriate behaviour (Bourdieu, 1991; Markus and Kitayama, 1991; Schwartz, 1994).

At the aggregate level, seven types of cultural value orientations may be identified (Schwartz, 1994): Embeddedness, Intellectual Autonomy, Affective Autonomy, Hierarchy, Egalitarianism, Mastery and Harmony. They may be grouped into three bipolar dimensions (Figure 1).

- Autonomy (intellectual and affective) vs Embeddedness: This dimension covers the troubled relationship between the individual and the group. At the embeddedness end, the person is seen as an entity that is included in the community (examples of values may be social order, respect for tradition, family security or wisdom). Meanwhile, at the other end, people are autonomous bodies that find meaning in their own difference (to be curious, open-minded or creative are values within intellectual autonomy; pleasure, a varied life or an exciting life are affective autonomy values). Of course, the relative strength of affective and intellectual autonomies may make a difference at the cultural level (see Schwartz and Ros, 1995, for a comparison of western countries). Many theorists associate individualism with the self-interested pursuit of personal goals (Triandis, 1995). However, self-interest is equally present in both sides of the Autonomy-Embeddedness dimension (Schwartz, 2004, 2006b).
- Egalitarianism vs Hierarchy: The second societal problem is to guarantee responsible behaviour that preserves the social fabric. People must be induced to consider the welfare of others, to coordinate with them, and

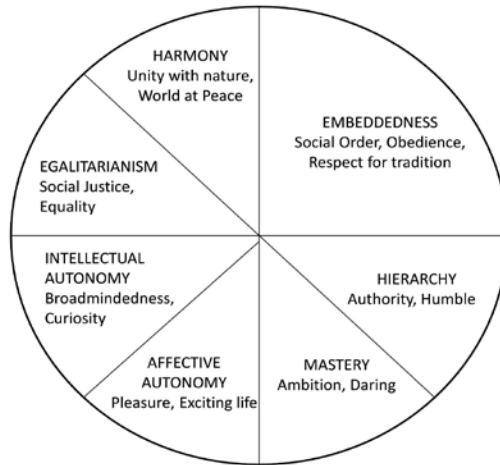
thereby manage their unavoidable interdependencies. This addresses the responsible, cooperative behaviour that will get societal tasks done, either by differentiating roles, or by internalising commitment and voluntary co-operation (Schwartz, 1994). At the Egalitarianism end of this dimension, the members of society are considered as equal beings who share a commitment to cooperate with others and pursue the common good (social values such as justice, freedom, responsibility, honesty). Meanwhile, at the Hierarchy end the unequal distribution of power, roles and resources is considered legitimate (social values such as power, authority, humility, wealth).

- **Harmony vs Mastery:** This dimension helps regulate people's treatment of natural and human resources. It solves the problems of the relations between persons, and between persons and nature. Those cultures heavily sided towards the Mastery pole are seeking personal gain through the exploitation and domination of nature (ambitious, successful, competitive, risk-taker). On the Harmony side, on the other hand, cultures that seek individuals fitting harmoniously with nature are placed (unity with nature, protecting the environment, a world at peace, etc.).

These cultural value orientations also present a framework of cultural compatibility and opposition (Schwartz, 1994, 1999), since some of them share common basic assumptions. For instance, Hierarchy and Embeddedness are positively related, sharing the idea that personal roles and obligations to collectivities are more important than individual ideas and aspirations. These values, therefore, are more present in collectivist countries. A similar relationship is also found with respect to Egalitarianism and Intellectual Autonomy. They share the idea of a social actor who assumes individual responsibility and makes personal decisions based on their understanding of situations. Thus, these values predominate in individualist countries (Schwartz, 1994, 1999). In practice, high Egalitarianism and Intellectual Autonomy are usually found together, as in Western Europe (Schwartz and Ros, 1995).

The shared and opposing assumptions inherent in cultural values yield a coherent circular structure of relations between them (Schwartz, 1999). As shown in Figure 1, the structure reflects the cultural orientations that are compatible (adjacent in the circle) or incompatible (distant around the circle). This conception of cultural dimensions as forming an integrated system, derived from a priori theorising, distinguishes this approach from others. Thus, Hofstede (1980 and 2003) conceptualised his dimensions as independent, while Inglehart (1997) empirically derived two broad cultural components.

FIGURE 1. THE CIRCULAR STRUCTURE OF VALUES



SOURCE: SCHWARTZ (2004).

As may be expected, considerable interdependence between culture and economic development is found (Mueller et al., 2002; Ros, 2002; Shane, 1993). Less developed countries are typically characterised by a predominance of Embeddedness and Hierarchy, while Autonomy and Egalitarianism tend to prevail in developed countries (Schwartz, 2008). In particular, Autonomy seems to be more strongly associated with economic growth, while Egalitarianism is more strongly linked to social change (Schwartz, 2004). Regarding the relationship between Harmony/ Mastery and economic development, no strong evidence is found (Schwartz, 2004; Schwartz and Ros, 1995). This Harmony concept has been related to Inglehart's (1997) postmaterialism and is found to be higher in most developed countries. In particular, this cultural orientation is highest in Western Europe (Schwartz and Ros, 1995), while in English-speaking (especially in the USA) and Confucian countries, Mastery is prevalent (Schwartz, 2008). Consequently, based on the review of the theory and research, we propose the following hypotheses addressing the relationship between economic development and cultural values:

- H2a: The cultural dimension of Autonomy-Embeddedness is positively correlated to per capita GDP: as income grows, Autonomy tends to prevail over Embeddedness.*
- H2b: The cultural dimension of Egalitarianism-Hierarchy is positively correlated to per capita GDP: as income grows, Egalitarianism tends to prevail over Hierarchy.*

H2c: The cultural dimension of Harmony-Mastery is positively correlated to per capita GDP: as income grows, Harmony tends to prevail over Mastery.

This paper has a focus on the relationships between economic development, culture and entrepreneurship. In this respect, our core hypothesis postulates that cultural values play a complex role as mediators in the relationship between economic development and entrepreneurship, as shown in the theoretical model proposed in Figure 2. In this model, the complex role of culture comes from two mechanisms:

- *Mediation effect:* Economic development leads to cultural changes –as previously explained– (arrow B in Figure 2), and cultural values can stimulate or hamper entrepreneurial activity (arrow C). These two effects together determine the mediating role of culture in the income-entrepreneurship relation.

Regarding Autonomy, an overall negative relationship with the entrepreneurial activity should be expected. That is, Embeddedness would favour entrepreneurship. In countries where Embeddedness prevails, the sense of community would facilitate support for nascent entrepreneurs and, in particular, for small-scale necessity initiatives.

In turn, Egalitarianism (versus Hierarchy) would have a positive influence in entrepreneurial activity. In countries where Hierarchy prevails, more people adopt a passive role, accepting the social order and their economic situation (Schwartz, 2006b). However, in egalitarian societies people are considered as equal beings who might cooperate with others to pursue certain objectives, and improving their social and economic status might be among these possible goals (Schwartz, 2006b). In this respect, entrepreneurship can pose a powerful path to vertical mobility within a society which might be more acceptable in egalitarian societies, while in hierarchical societies it would not be tolerated.

Societies where Mastery prevails (instead of Harmony) tend to encourage active self-assertion in order to master, direct and change the natural and social environment to attain own goals (Schwartz, 2006b). Therefore, since entrepreneurship represents changes in economic and competition conditions in the market, it would be favourably seen in these societies. In turn, the predominance of Harmony promotes the acceptance of the world (nature and society) as it is, trying to understand and appreciate, rather than to change it. This would be associated with a lower entrepreneurial activity.

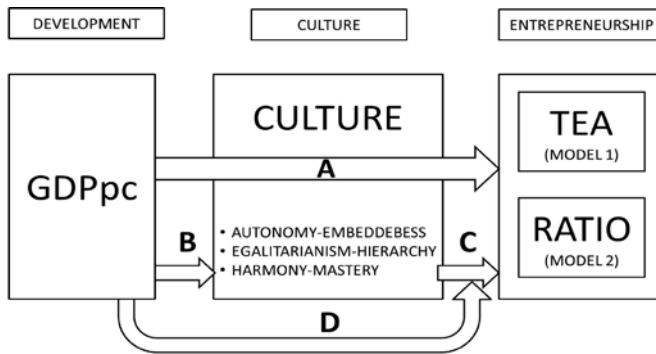
Therefore, with respect to the relation of culture to entrepreneurship, the following hypotheses may be proposed:

H3a: The Autonomy-Embeddedness dimension is negatively related to the entrepreneurship rate.

H3b: The Egalitarianism-Hierarchy dimension is positively related to the entrepreneurship rate.

- H3c: The Harmony-Mastery dimension is negatively related to the entrepreneurship rate.*
- H4a: The Autonomy-Embeddedness dimension is negatively related to the opportunity/necessity ratio*
- H4b: The Egalitarianism-Hierarchy dimension is positively related to the opportunity/necessity ratio*
- H4c: The Harmony-Mastery dimension is not related to the opportunity/necessity ratio*

FIGURE 2. DEVELOPMENT-CULTURE-ENTREPRENEURSHIP



- *Interaction effect:* On the other hand, the influence of cultural values on entrepreneurial activity may be different in countries with different income levels (arrow D in Figure 2). Thus, previous evidence suggests that in low-income countries, high entrepreneurship tends to be associated with a collectivist culture (Pinillos and Reyes, 2011; Wennekers, Thurik, van Stel and Noorderhaven, 2007). Moreover, in these countries, a higher rate of necessity entrepreneurship is found. Thus, in countries where the income level is lower, cultural values such as Embeddedness (versus Autonomy) may be associated with a higher overall entrepreneurial activity and with a lower opportunity/necessity ratio. In these countries, the sense of community would facilitate social support for the necessity entrepreneurs starting their businesses to sustain their families.

In contrast, in developed countries, a higher individualism is associated with increased entrepreneurial activity (Busenitz and Lau, 1996; Mueller et al., 2002). In this sense, Schwartz (1999) finds individualism as positively linked to Autonomy and Egalitarianism, while opposed to Embeddedness and Hierarchy. This result has been confirmed by Ros (2002). Thus, in the case of developed countries, Autonomy (versus Embedded-

ness) should be positively related to entrepreneurial activity. In this type of countries the economic and institutional environment is especially favourable for the opportunity-driven entrepreneurs, whereas the necessity motivation is less important. So, in these countries Autonomy and Egalitarianism could particularly foster opportunity-driven entrepreneurship and stimulate the emergence of entrepreneurs motivated by their desire for autonomy or self-realisation. Conversely, the opposed values of Embeddedness and Hierarchy should have an especially negative impact on entrepreneurship in the high-income countries.

Finally, regarding the Harmony-Mastery dimension, as explained above the prevalence of Mastery should be associated with a higher entrepreneurial activity, irrespective of the income level. Therefore, no interaction effect is expected here.

Thus, the following hypotheses about the interaction of culture and income with entrepreneurship may be proposed:

H5: In countries with higher levels of income:

H5a: A stronger prevalence of Autonomy leads to an even higher entrepreneurship rate.

H5b: A stronger prevalence of Egalitarianism leads to an even higher entrepreneurship rate.

H5c: The prevalence of Harmony has no specific effect on the entrepreneurship rate.

H6: In countries with higher levels of income:

H6a: A stronger prevalence of Autonomy leads to an even higher opportunity/necessity ratio.

H6b: A stronger prevalence of Egalitarianism leads to an even higher opportunity/necessity ratio.

H6c: The prevalence of Harmony has no specific effect on the opportunity/necessity ratio.

3. EMPIRICAL ANALYSIS

The empirical analysis will be carried out on a total sample of 56 countries with very different income levels (Annex 1). Within this sample, 27 countries may be considered as developed, while the rest (29) will qualify as developing. Structural equations modelling (SEM), and specifically partial least squares (PLS), is proposed to assess the relationships between the constructs along with the predictive power of the research model.

3.1. METHODOLOGY

The selection of countries has been made based on the available data (countries participating in both the GEM project and the Schwartz Value

Survey –SVS- study were included). The first model tries to explain the TEA level of countries based on GDPpc and culture. A second, PLS model will aim to explain the opportunity/necessity ratio using the same explanatory variables (see Figure 2). The variables used in the analysis are the following:

- For income level, Gross Domestic Product per capita will be used:
- a) *Gross Domestic Product per capita (GDPpc)*. Data are obtained from the World Development Indicators of the World Bank (average for the period 2001-2011).
- For entrepreneurship, data come from the Global Entrepreneurship Monitor (GEM) statistics¹:
- b) *Total Entrepreneurial Activity (TEA)*: percentage of population aged 18-64 who are either a nascent entrepreneur (starting a venture, or just started one with no more than 3 months of existence) or owner-manager of a new business (i.e., owning and managing a running business that has paid salaries, wages, or any other payments to the owners for more than three months, but not more than 42 months). Since countries participating in the GEM study change from year to year, we have selected a longer time-frame to maximise the number of countries with meaningful observations. The values are averaged annual data for the period 2001-2011.
- c) *Opportunity/Necessity ratio (RATIO)*: is the ratio $c1/c2$. GEM data on motivations for entrepreneurship were available only from 2005. This has determined the time period for the selection of data:
 - c1) Improvement-Driven Opportunity Entrepreneurial Activity: Total entrepreneurial activity reporting opportunity as major motive (either they claim to be driven by opportunity as opposed to finding no other option for work; or they indicate the main driver for being involved in this opportunity is being independent or increasing their income, rather than just maintaining their income). The values are averaged annual data for the period 2005-2011.
 - c2) Necessity-Driven Entrepreneurial Activity: Total entrepreneurial activity reporting necessity as major motive (because they had no other option for work). The values are averaged annual data for the period 2005-2011.
- For cultural values, the Schwartz Value Survey (SVS) has been used (Schwartz, 2006b). The Schwartz Value Survey consists of 57 items which represent 7 value orientations at the cultural level. The data are available for more than 60 countries from surveys conducted in different years within the period 1985-2005. The full sample includes over 75000 people. The average for each country has been computed for the 57 value-items. These national-level

¹ Since 1999, the GEM project measures and compares the entrepreneurship levels for different time periods and countries. Available from the GEM consortium web page: <http://www.gemconsortium.org/key-indicators>.

scores were then averaged into seven cultural orientations (Schwartz, 2004; Schwartz and Ros, 1995): Embeddedness, Intellectual Autonomy, Affective Autonomy, Hierarchy, Egalitarianism, Mastery and Harmony. Finally, following Schwartz (Schwartz, 2006b), the seven cultural values were grouped again into three latent bipolar cultural dimensions (constructs) in the PLS analysis. These three dimensions will be the variables used in the empirical analysis:

d) *Autonomy² vs Embeddedness (AUTO-EMB)*: A positive value represents the predominance of the Autonomy element, whereas a negative value reflects the predominance of the Embeddedness value orientation.

e) *Egalitarianism vs Hierarchy (EGAL-HIER)*: A positive value represents the predominance of Egalitarianism values, whereas a negative value reflects the predominance of Hierarchy.

f) *Harmony vs Mastery (HAR-MAS)*: A positive value reflects the predominance of the first element (Harmony), whereas a negative value represents the predominance of Mastery values.

Additionally, three interaction effect variables (cultural dimensions x GDPpc) are included into the two models.

Given the characteristics of the model proposed and our variables, a multivariate analysis technique based on Partial Least Squares (PLS) will be used. According to Gefen, Straub and Boudreau (2000), when exploratory studies are carried out and relatively small samples are used, this multivariate statistical technique is more suitable than others, such as LISREL, based on covariance analysis. PLS analysis provides results for both the measurement model (reliability and validity of indicators) and the structural model (hypothesised relationships). Smart PLS 2.0 software was used to estimate the models. The stability of the estimates was tested via a bootstrap re-sampling procedure (500 sub-samples).

3.2. RESULTS

A PLS model is analysed and interpreted in two stages: first, the assessment of the reliability and validity of the measurement model and second, the assessment of the structural model. This sequence ensures that the constructs' measures are valid and reliable before attempting to draw conclusions regarding relationships among constructs (Barclay, Higgins and Thompson, 1995).

3.2.1. Measurement model

In the present study, latent constructs with reflective measures are used. To assess reliability, loadings of each indicator should be examined. They can be interpreted in the same manner as the loadings in a principal component analysis (Carmines and Zeller, 1979). Individual reflective item reliability is

² Following Schwartz (2006b), Autonomy is operationalised as the average of Intellectual and Affective Autonomy.

considered adequate when an item has a factor loading greater than 0.707 on its respective construct: This implies more shared variance between the construct and its measures (indicators) than error variance. As Table 1 shows, the results obtained are acceptable in both models. All the reflective individual item loadings in our final models are above this threshold.

TABLE 1. MEASUREMENT MODEL

	Loading	AVE	Composite Reliability	R Squared	Cronbach's Alpha
<i>Model 1. GDP-Culture-TEA</i>					
AUTO-EMB		0.857	0.947	0.513	0.916
Affective Autonomy	0.913***				
Intellectual Autonomy	0.888***				
Embeddedness (reversed)	0.973***				
EGAL-HIER		0.828	0.906	0.275	0.796
Egalitarianism	0.934***				
Hierarchy (reversed)	0.886***				
HAR-MAS		0.743	0.851	0.061	0.687
Harmony	0.949***				
Mastery (reversed)	0.765***				
GDPpc		1.000	1.000		1.000
AUTO-EMBxGDPpc		-	-		0.910
EGAL-HIERxGDPpc		-	-		0.863
HAR-MASxGDPpc		-	-		0.729
TEA		1.000	1.000	0.519	1.000
<i>Model 2. GDP-Culture-RATIO</i>					
AUTO-EMB		0.856	0.947	0.515	0.915
Affective Autonomy	0.910***				
Intellectual Autonomy	0.890***				
Embeddedness (reversed)	0.973***				
EGAL-HIER		0.830	0.901	0.274	0.796
Egalitarianism	0.913***				
Hierarchy (reversed)	0.908***				
HAR-MAS		0.761	0.851	0.059	0.688
Harmony	0.894***				
Mastery (reversed)	0.850***				
GDPpc		1.000	1.000		1.000
AUTO-EMBxGDPpc		-	-		0.909
EGAL-HIERxGDPpc		-	-		0.863
HAR-MASxGDPpc		-	-		0.864
RATIO		1.000	1.000	0.635	1.000

NOTE: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. AVE = AVERAGE VARIANCE EXTRACTED

Construct reliability analyses the internal consistency for a given block of indicators. This is assessed using the composite reliability (Werts, Linn and Joreskog, 1974). The interpretation of composite reliability and Cronbach's alpha is similar. For both of them, 0.7 is an acceptable benchmark for reliability, as suggested by Nunnally (1978). All the values in Table 1 are above this threshold with the unique exception of the Cronbach's alphas for the Harmony-Mastery construct. However, values above 0.6 are acceptable in the initial stages of research (Nunnally, 1978). Therefore, all of the latent constructs in our analysis are reliable. We have also checked the significance of the loadings with a re-sampling procedure (500 sub-samples) to obtain t-statistic values. They are all significant for Model 1 and Model 2 (see Table 1).

Average variance extracted (AVE) assesses the amount of variance that a construct captures from its indicators relative to the amount due to measurement error (Fornell and Larcker, 1981). It is recommended that AVE should be greater than 0.5, meaning that over 50 per cent of the variance in each indicator is accounted for by the construct. All latent variables in Models 1 and 2 comply with this condition.

Discriminant validity (Fornell and Larcker, 1981) indicates the extent to which a given construct is different from other latent variables. To assess discriminant validity, AVE should be greater than the variance shared between the latent construct and other latent constructs in the model (i.e., the squared correlation between two constructs) (Barclay et al., 1995). All latent variables satisfy this condition and the discriminant validity of all the latent constructs in both models is confirmed (Table 2).

TABLE 2. LATENT VARIABLE CORRELATIONS

Model 1	GDPpc	AUTO-EMB	AUTO-EMB x GDPpc	HAR-MAS	HAR-MAS x GDPpc	EGAL- HIER	EGAL- HIER x GDPpc	TEA
GDPpc	1.000							
AUTO-EMB	0.718	0.926						
AUTO-EMB x GDPpc	-0.107	-0.142	0.916					
HAR-MAS	0.247	0.364	0.072	0.863				
HAR-MAS x GDPpc	-0.238	-0.178	0.505	0.183	0.512			
EGAL-HIER	-0.524	-0.588	-0.215	-0.682	-0.190	0.910		
EGAL-HIER x GDPpc	0.190	0.073	-0.280	-0.040	-0.305	-0.052	0.580	
TEA	-0.615	-0.610	0.432	-0.269	0.298	0.294	-0.378	1.000

Model 2	GDPpc	AUTO-EMB	AUTO-EMB xGDPpc	HAR-MAS	HAR-MAS xGDPpc	EGAL- HIER	EGAL- HIER xGDPpc	RATIO
GDPpc	<i>1.000</i>							
AUTO-EMB	0.718	<i>0.926</i>						
AUTO-EMB x GDPpc	-0.104	-0.110	<i>0.921</i>					
HAR-MAS	0.243	0.305	0.119	<i>0.873</i>				
HAR-MAS x GDPpc	-0.121	0.104	0.390	0.194	<i>0.882</i>			
EGAL-HIER	-0.524	-0.583	-0.224	-0.667	-0.135	<i>0.911</i>		
EGAL-HIER x GDPpc	-0.038	-0.237	-0.505	-0.136	-0.685	0.197	<i>0.937</i>	
RATIO	0.672	0.535	0.191	0.297	0.113	-0.565	-0.391	<i>1.000</i>

Note: Diagonal elements (italics) are the square root of average variance extracted (AVE). Off-diagonal elements are correlations between constructs.

3.2.2. STRUCTURAL MODEL

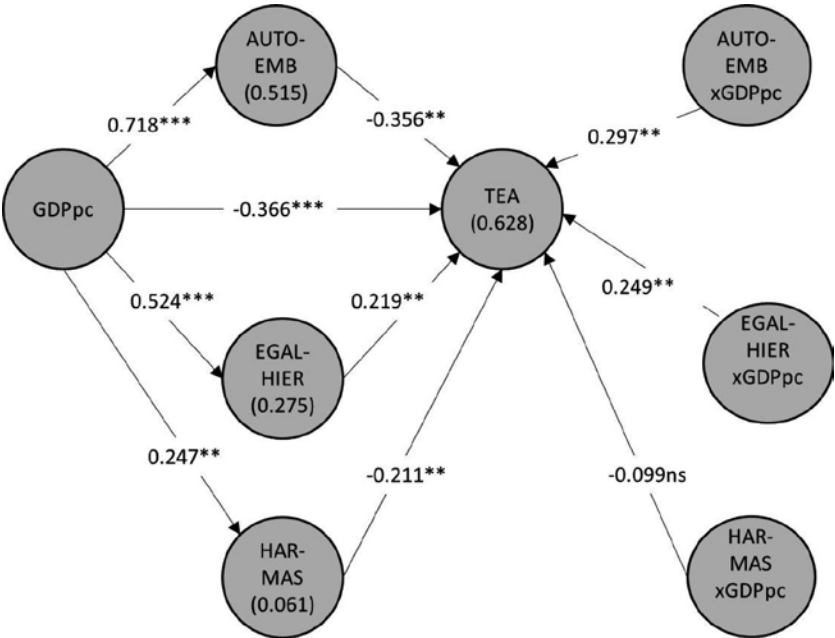
Figure 3 and Figure 4 present the path coefficients (β) and the R^2 values (variance explained) for the dependent variables. Consistent with Chin (1998), bootstrapping (500 resamples) was used to generate standard errors and t-values. Support for each general hypothesis on both samples can be determined by examining the sign and statistical significance of the t-values.

The results from Model 1 show that, as expected, GDPpc plays a very relevant role in explaining the level of entrepreneurial activity across countries (hypotheses H1). Income level, in terms of GDPpc, is negatively related to TEA (H1a is supported). However, evidence of a U-shaped relationship between GDP and entrepreneurship might also be found for the sample countries³. If the ratio of Opportunity to Necessity entrepreneurship is considered (Model 2), the results again confirm the positive relationship between GDPpc and this dependent variable. As the level of income rises, the proportion of opportunity-driven to necessity-driven entrepreneurship is higher. Therefore, hypothesis H1b is supported.

³ In order to capture this possible quadratic effect, the squared per capita income was also included in the PLS regression. This variable happened to have a positive statistically-significant effect. However, severe multicollinearity problems arose in the model which could not be solved with variable transformations.

Additionally, results in Model 1 and Model 2 support the idea that GDP levels have an influence on predominant cultural values. That is, as an economy develops, the cultural value priorities of the society tend to move towards stressing Autonomy (instead of Embeddedness), Egalitarianism (instead of Hierarchy) and Harmony (instead of Mastery). In contrast, in lower income countries, the opposite value orientations are emphasized. The signs and significance levels of these relationships are consistent in both alternative models. Therefore, the relationship between development and culture is clearly supported by these results (Hypotheses H2a, H2b and H2c are thus supported).

FIGURE 3. MODEL 1: GDPpc-CULTURE-TEA



Note: *p < 0.05; **p < 0.01; ***p < 0.001; ns: not significant (based on t (499) two-tailed test).

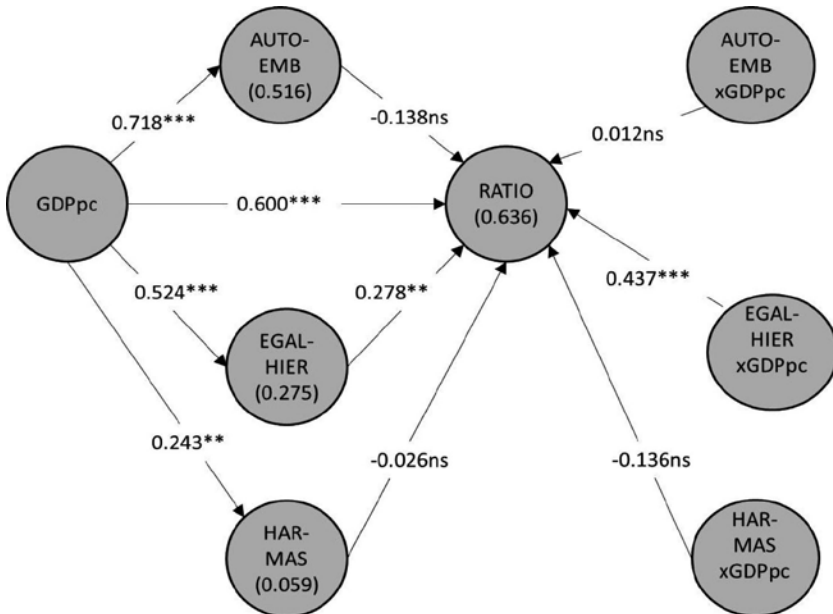
Regarding the hypotheses about the mediating role of culture, they are partially confirmed by the results. Looking at the effects on TEA (H3), Model 1 shows that, as was expected, countries where Embeddedness, Egalitarianism and Mastery predominate tend to exhibit higher entrepreneurship levels (TEA).. In turn, the results about the mediating effect of culture on entrepreneurial motivations are presented in Model 2 (H4). In this case, only the Egalitarianism-Hierarchy value dimension plays a relevant role in explaining the Opportunity/ Necessity ratio, over and above that of GDPpc. In countries where Egalitarianism

is prevalent, a higher proportion of Opportunity entrepreneurship occurs. In turn, Necessity entrepreneurship is more abundant where Hierarchy prevails. Therefore, hypotheses H4b and H4c are confirmed, while H4a is not.

However, when the joint effect of income and culture is considered (interaction effects as stated by Hypotheses H5 and H6), relevant differences emerge. In the case of the Autonomy-Embeddedness dimension, evidence of a non-linear relationship with the entrepreneurship level is found. In higher income countries Autonomy (instead of Embeddedness) can boost the levels of entrepreneurship (H5a supported). This effect is not present, though, in the opportunity/necessity ratio (H6a not supported).

In contrast, the predominance of Egalitarianism (instead of Hierarchy) is always associated with higher entrepreneurial activity. But this relationship becomes stronger when high income and high Egalitarianism are found together (H5b supported). And this effect is also present with regards to the opportunity/necessity ratio (H6b supported). That is, the predominance of egalitarianism always leads to a higher share of opportunity entrepreneurs, but the effect is stronger for higher income countries. Finally, as hypothesised, no interaction is found between income and the Harmony-Mastery dimension of culture (H5c and H6c are supported).

FIGURE 4. MODEL 2: GDPpc-CULTURE-RATIO



Note: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; ns: not significant (based on $t(499)$ two-tailed test).

4. DISCUSSION

Different studies have shown that entrepreneurship can significantly contribute to economic growth, job creation and innovation (Carree et al., 2002; Reynolds et al., 2002). There may be a role for policy action to improve people's inclination towards developing new entrepreneurial initiatives (OECD, 1998). Some countries (such as those in the European Union) have attempted to achieve this objective through short-term policies focused on eliminating barriers to the development and growth of businesses. Nevertheless, the type of entrepreneurial motivation may be a key factor in explaining the entrepreneurship levels. Thus, a high interest has been raised in the understanding of the factors determining the TEA and the opportunity/necessity ratio in the different countries or regions. The results of this study contribute to a more thorough understanding of the environmental variables that have an effect on the aggregate level of each type of entrepreneurial activity.

In this sense, the paper includes a multidimensional concept of culture to help explain the complex relationship between culture, development and entrepreneurship. Income differences are associated with different relative value priorities within the three cultural dimensions considered. Rather than a pure causation effect, it may be more reasonable to think about the existence of interdependence. That is, income and culture tend to change jointly. In particular, this relationship is more intense for the Autonomy-Embeddedness and Egalitarianism-Hierarchy dimensions. In high-income countries, Autonomy and Egalitarianism tend to prevail, whereas in low income countries Embeddedness and Hierarchy predominate.

Previous research has associated individualistic values with entrepreneurial activity (Pinillos and Reyes, 2011). Autonomy and Egalitarianism can be associated with individualism. In this paper, evidence has been provided about the positive influence of Egalitarianism on entrepreneurship. However, Autonomy seems to have an apparently negative effect on the entrepreneurial activity. On the one hand, this is a clear indication that culture is a complex phenomenon that cannot be accounted for by the simplistic distinction between individualism and collectivism. On the other hand, this general result regarding the Autonomy-Embeddedness dimension points to the complexity of the relationship between economic development, culture and entrepreneurship. Thus, the effect of the same cultural values on entrepreneurial activity could be different depending on the countries' level of development. The results of this paper show that in low-income countries Embeddedness could favour entrepreneurial activity, whereas in higher-income countries Autonomy can stimulate entrepreneurial activity.

This paradoxical result can be explained by the different types of entrepreneurship (motivations) predominant in low- and high-income countries. In this respect, the predominance of Egalitarianism in a culture is significantly associated with a higher opportunity/necessity ratio. This value orientation

promotes responsibility, equal opportunities, and support for less powerful actors. Thus, it tends to create a social environment in which people are more willing to pursue the opportunities they are aware of. It is interesting to note that this effect is valid in both developed and developing countries, but it is even stronger for the high-income ones (as the significant interaction effect in Figure 4 shows).

In contrast, Autonomy is not significant to explain the opportunity/necessity ratio according to the results presented in this paper. The explanation may be that for both motivations (reaping an opportunity or lack of better employment alternative), a society stressing Autonomy promotes individual action. Or, alternatively, in countries where Embeddedness prevails, any new entrepreneurs (irrespective of their motivations) will find greater social support in their closer environment.

Regarding the Harmony/Mastery dimension, this is the least significant cultural dimension. But even in this case, its influence may be more relevant than could be initially thought. Some previous results suggest that developed countries are divided between Western Europe (where Harmony prevails) and English-speaking and Confucian countries (where Mastery prevails) (Schwartz, 2008). Therefore, the differences in entrepreneurial activity between these two groups of countries could be partly due to the stress which they place in each bipolar element of this dimension. This may also account for the lack of significance in the present study.

The present study, then, adds another explanation -complementary to others previously provided in the literature- for the U-shaped relationship between national GDP per capita and entrepreneurial activity. In high-income countries, there are more opportunities that may be taken advantage of. But people will act more often to profit from those opportunities when the society strongly emphasises individual responsibility and personal decision and action (Schwartz, 1994, 1999). As previously said, throughout the development process a cultural change occurs towards Autonomy and Egalitarianism values. The movement towards Autonomy, within the bipolar dimension Autonomy-Embeddedness, could have an initial negative effect on entrepreneurship in developing countries. The sense of community can be deteriorated by the economic and cultural changes and, as a consequence, the family and social support for the necessity entrepreneurs in their projects could diminish. However, in later stages in the development process, high-income countries benefit from a cultural environment characterised by Autonomy and Egalitarianism which stimulates opportunity-driven entrepreneurial activity.

The theoretical framework proposed in this paper has allowed us to delve into the complex role of cultural values as a mediating factor in the relationship between the level of development and the entrepreneurial activity. However, the paper is not without limitations. In particular, the sample size is small and the results may be highly sensitive to the inclusion of any additional country in the sample. Nevertheless, all countries for which data were available have been

included. And, limited as it may be, this study offers relevant indications on the mediating effect of culture on the income-entrepreneurship relationship. Of course, additional work is needed –and called for– to confirm or refute these findings.

5. CONCLUSION

This paper has gone further than the usual individualism-collectivism dichotomy. It aims to fill a relevant gap in the literature by assessing the specific effect of several cultural value-dimensions on entrepreneurship. In particular, this paper attempts to do so by analysing how specific cultural values (as defined by Schwartz, 1999, 2006b) can influence opportunity and necessity entrepreneurship in different countries. The use of a theory-based cultural value structure may contribute to a more thorough understanding of the complex interaction between economic development and culture, and how these two groups of variables affect entrepreneurial activity.

Based on the review of the theory and research, this paper has shown evidence of the existence of relevant interactions between economic development, entrepreneurship and cultural values. Despite its tentative character, this study has offered very promising insights about the nature of the relationships between culture and entrepreneurship. The implications for academics and policy makers may be substantial. If a better understanding of the effect of culture on entrepreneurship is gained, measures and programmes to promote the desired cultural values may be devised. In developing countries, a certain combination of cultural values should be associated with specific policies to promote income growth and entrepreneurial activity. Lessons may undoubtedly be learned from this.

ANNEX 1. LIST OF COUNTRIES (IN BRACKETS, YEARS IN WHICH THE SVS DATA WERE OBTAINED)

Argentina (1993, 1995), Australia (1988, 1990, 1992, 1996, 1999), Austria (1996, 1998), Belgium (1991, 1995, 2002), Bolivia (1993), Bosnia-Herzegovina (2002), Brazil (1989, 1991, 1993, 1995), Canada (1992, 2001, 2002), Chile (1994, 1995, 1997, 1998), China (1988, 1989, 1995), Costa Rica (2002, 2003), Croatia (2002), Denmark (1991, 1995), Egypt (2004), Finland (1989, 1991-1993, 1995, 1997, 1998, 2001), France 1991, 1994-1996, 1998), Germany (1989-1991, 1994, 1996), Ghana (1995), Greece (1989, 1996), Hong Kong (1988, 1996, 2001), Hungary (1990, 1995), India (1991, 1992), Indonesia (1992, 1995), Iran (2000), Ireland (1995, 2000), Israel (1989, 1990, 1994, 1995, 1996), Italy (1989, 1991, 1997, 2002), Japan (1989, 1990), Jordan (2002), Latvia (1998), Malaysia (1989, 2003), Mexico (1990, 1996), Netherlands 1988, 1996, 1998), New Zealand (1988, 1994, 1998), Norway (1994), Peru (1996, 2002, 2003), Philippines (1996,

1997, 2000), Poland (1988, 1990, 1997, 2003), Portugal (1989, 1993), Romania (1996), Russia (1993, 1995, 1996, 1999, 2002), Singapore (1991, 1995, 1997), Slovenia (1992), South Africa (1992, 1994, 1996, 2003), South Korea (1993, 2002), Spain (1988, 1996, 2002), Sweden (1992-1994, 1998), Switzerland (1990, 1996), Taiwan (1988, 1993, 1994), Thailand (2005), Turkey (1990, 1993, 1995, 2000), Uganda (1995), United Kingdom (1990, 1995), USA (1988, 1989, 1991-1996, 2000), Venezuela (1989, 1991, 1993, 1994), Yemen (2003).

BIBLIOGRAPHIC REFERENCES

- Armington, C., and Acs, Z. J. (2002): "The Determinants of Regional Variation in New Firm Formation", *Regional Studies*, 36(1), 33-45.
- Audretsch, D. B., and Fritsch, M. (1999): "The Industry Component of Regional New Firm Formation Processes", *Review of Industrial Organization*, 15(3), 239-252.
- Barclay, D., Higgins, C., and Thompson, R. (1995): "The Partial Least Squares (PLS) Approach to Causal Modelling: Personal Computer Adoption and Use as an Illustration", *Technology Studies*, 2(2), 285-309.
- Bjornskov, C., and Foss, N. J. (2006): "Economic Freedom and Entrepreneurial Activity: Some Cross-country Evidence", *DRUID Working paper*, 06-18.
- Bourdieu, P. (1991): *Language and Symbolic Power*, Polity Press, Cambridge.
- Busenitz, L. W., and Lau, C. M. (1996): "A Cross-cultural Cognitive Model of New Venture Creation", *Entrepreneurship Theory and Practice*, 20(4), 25-39.
- Carmines, E. G., and Zeller, R. A. (1979): *Reliability and Validity Assessment* (Vol. 17), Sage Publications, Incorporated, Beverly Hills, CA.
- Carree, M. A., van Stel, A., Thurik, A. R., and Wennekers, A. R. M. (2002): "Economic Development and Business Ownership: An Analysis Using Data of 23 OECD Countries in the Period 1976-1996", *Small Business Economics*, 19(3), 271-290.
- Chin, W. W. (1998): "The Partial Least Squares Approach to Structural Equation Modelling". In G. A. Marcoulides (Ed.), *Modern Methods for Business Research* (pp. 295-336), Lawrence Erlbaum Associates, Mahwah, NJ.
- Davidsson, P. (1995): "Culture, Structure and Regional Levels of Entrepreneurship", *Entrepreneurship and Regional Development*, 7(1), 41-62.
- Davidsson, P., and Wiklund, J. (1997): "Values, Beliefs and Regional Variations in New Firm Formation Rates", *Journal of Economic Psychology*, 18(2-3), 179-199.
- Etzioni, A. (1987): "Entrepreneurship, Adaptation and Legitimation: a Macro-behavioral Perspective", *Journal of Economic Behavior & Organization*, 8(2), 175-189.
- Fernández-Serrano, J., and Romero, I. (2012): "Entrepreneurial Quality and Regional Development: Characterizing SME Sectors in Low Income Areas", *Papers in Regional Science*, 10.1111/j.1435-5957.2012.00421.x.

- Fernández, J., Liñán, F., and Santos, F. J. (2009): "Cognitive Aspects of Potential Entrepreneurs in Southern and Northern Europe: an Analysis Using Gem-Data", *Revista de Economía Mundial*, 23, 151-178.
- Fishman, R., and Sarria-Allende, V. (2004): *Regulation of Entry and the Distortion of Industrial Organization. Working Paper No. 10929*, National Bureau of Economic Research, Cambridge, MA.
- Fornell, C., and Larcker, D. F. (1981): "Evaluating Structural Equation Models with Unobservable Variables and Measurement Error: Algebra and Statistics", *Journal of Marketing Research*, 18(3), 39-50.
- Frederking, L. C. (2004): "A Cross-national Study of Culture, Organization and Entrepreneurship in Three Neighbourhoods", *Entrepreneurship and Regional Development*, 16(3), 197-215.
- Fritsch, M., and Mueller, P. (2004): "Effects of New Business Formation on Regional Development over Time", *Regional Studies*, 38(8), 961-975.
- Gefen, D., Straub, D. W., and Boudreau, M. C. (2000): "Structural Equation Modeling and Regression: Guidelines for Research Practice", *Communications of the Association for Information Society*, 4(7), 1-77.
- Gries, T., and Naude, W. (2008): *Entrepreneurship and Structural Economic Transformation (Working Paper RP2008/62)*. Helsinki: UNU World Institute for Development Economics Research (UNU-WIDER).
- Hayton, J. C., George, G., and Zahra, S. A. (2002): "National Culture and Entrepreneurship: a Review of Behavioral Research", *Entrepreneurship Theory and Practice*, 26(4), 33-52.
- Hessels, J., Van Gelderen, M., and Thurik, A. R. (2008): "Entrepreneurial Aspirations, Motivations, and Their drivers", *Small Business Economics*, 31(3), 323-339.
- Hofstede, G. (1980): *Culture's Consequences: International Differences in Work-Related Values*, Sage Publications, Beverly Hills.
- Hofstede, G. (1991): *Cultures and Organizations: Software of the Mind*, McGraw-Hill, London.
- Hofstede, G. (2003): *Culture's Consequences: Comparing Values, Behaviors, Institutions and Organizations Across Nations* (2nd edition ed.?), Sage Publications, Newbury Park.
- Inglehart, R. (1997): *Modernization and Postmodernization*, Princeton University Press, Princeton.
- Jabri, M. M. (2005): "Commentaries and Critical Articles: Text-context relationships and their Implications for Cross Cultural Management", *International Journal of Cross Cultural Management*, 5(3), 349-360.
- Jovanovic, T. B. (1993): "The Diversification of Production", *Brookings Papers on Economic Activity, Microeconomics*, 1993(1), 197-235.
- Krueger, N. F. (2000): "The Cognitive Infrastructure of Opportunity Emergence", *Entrepreneurship Theory and Practice*, 24(3), 5-23.
- Krueger, N. F. (2003): "The Cognitive Psychology of Entrepreneurship". In Z. J. Acs and D. B. Audretsch (Eds.), *Handbook of Entrepreneurship Research: An Interdisciplinary Survey and Introduction* (pp. 105-140), Kluwer, London.

- Krueger, N. F., and Carsrud, A. L. (1993): "Entrepreneurial Intentions: Applying the Theory of Planned Behavior", *Entrepreneurship and Regional Development*, 5(4), 315-330.
- Kuratko, D. F., Hornsby, J. S., and Naffziger, D. W. (1997): "An Examination of Owner's Goals in Sustaining Entrepreneurship", *Journal of Small Business Management*, 35(1), 24-33.
- Lee, S. M., and Peterson, S. J. (2000): "Culture, Entrepreneurial Orientation, and Global Competitiveness", *Journal of World Business*, 35(4), 401-416.
- Lee, S. Y., Florida, R., and Acs, Z. J. (2004): "Creativity and Entrepreneurship: A Regional Analysis of New Firm Formation", *Regional Studies*, 38(8), 879-891.
- Liñán, F., and Chen, Y. W. (2009): "Development and Cross-cultural Application of a Specific Instrument to Measure Entrepreneurial Intentions", *Entrepreneurship Theory and Practice*, 33(3), 593-617.
- Liñán, F., Santos, F. J., and Fernández, J. (2011): "The Influence of Perceptions on Potential Entrepreneurs", *International Entrepreneurship and Management Journal*, 7(3), 373-390.
- Liñán, F., Urbano, D., and Guerrero, M. (2011): "Regional Variations in Entrepreneurial Cognitions: Start-up Intentions of University Students in Spain", *Entrepreneurship and Regional Development*, 23(3&4), 187-215.
- Markus, H. R., and Kitayama, S. (1991): "Culture and the Self: Implications for Cognition, Emotion and Motivation", *Psychological Review*, 98, 224-253.
- Mcgrath, R. G., and MacMillan, I. C. (1992): "More Like Each Other Than Anyone Else - a Cross-Cultural Study of Entrepreneurial Perceptions", *Journal of Business Venturing*, 7(5), 419-429.
- Mcgrath, R. G., MacMillan, I. C., Yang, E. A., and Tsai, W. (1992): "Does Culture Endure, or Is It Malleable? Issues for Entrepreneurial Economic Development", *Journal of Business Venturing*, 7(6), 441-458.
- Minniti, M., Bygrave, W. D., and Autio, E. (2006): *GEM, Global Entrepreneurship Monitor, 2005 Executive Report*, London Business School & Babson College, London, U.K. & Babson Park, MA.
- Mitchell, R. K., Smith, B., Seawright, K. W., and Morse, E. A. (2000): "Cross-cultural Cognitions and the Venture Creation Decision", *Academy of Management Journal*, 43(5), 974-993.
- Mueller, S. L., and Thomas, A. S. (2001): "Culture and Entrepreneurial Potential: A Nine Country Study of Locus of Control and Innovativeness", *Journal of Business Venturing*, 16(1), 51-75.
- Mueller, S. L., Thomas, A. S., and Jaeger, A. M. (2002): "National Entrepreneurial Potential: the Role of Culture, Economic Development and Political History". In M. A. Hitt and J. L. C. Cheng (Eds.), *Managing Transnational Firms: Resources, Market Entry and Strategic Alliances* (Vol. 14, pp. 221-257), JAI Press, Amsterdam.
- Noorderhaven, N., Thurik, R., Wennekers, A. R. M., and van Stel, A. (2004): "The Role of Dissatisfaction and per Capita Income in Explaining Self-Employment Across 15 European Countries", *Entrepreneurship Theory and Practice*, 28(5), 447-466.

- Nunnally, J. C. (1978): *Psychometric Theory*, McGraw-Hill, New York.
- OECD. (1998): *Fostering entrepreneurship*, Organisation for Economic Co-operation and Development, Paris.
- Parker, S. C., and Robson, M. (2004): "Explaining International Variations in Self-Employment: Evidence from a Panel of OECD Countries", *Southern Economic Journal*, 71(2), 287-301.
- Pinillos, M.-J., and Reyes, L. (2011): "Relationship Between Individualist-collectivist Culture and Entrepreneurial Activity: Evidence from Global Entrepreneurship Monitor data", *Small Business Economics*, 37(1), 23-37.
- Reynolds, P. D., Bygrave, W., Autio, E., and Hay, M. (2002): *Global Entrepreneurship Monitor. 2002 Summary Report*, Ewin Marion Kauffman Foundation, Kansas City.
- Reynolds, P. D., Storey, D. J., and Westhead, P. (1994): "Cross-national Comparison of the Variation in New Firm Rates", *Regional Studies*, 28(4), 443-456.
- Ros, M. (2002): "Los Valores Culturales y el Desarrollo Socioeconómico: una Comparación entre Teorías Culturales", *Revista Española de Investigaciones Sociológicas*, 99, 9-33.
- Schwartz, S. H. (1990): "Individualism-Collectivism. Critique and proposed refinements", *Journal of cross-cultural psychology*, 21(2), 139-157.
- Schwartz, S. H. (1994): "Beyond Individualism-Collectivism: New Cultural Dimensions of Values". In U. Kim, H. C. Triandis, C. Kagitçibasi, S. C. Choi and G. Yoon (Eds.), *Individualism and collectivism. Theory, method, and applications* (pp. 85-119), Sage, Thousand Oaks, CA.
- Schwartz, S. H. (1999): "Cultural Value Differences: Some Implications for Work", *Applied Psychology: An International Review*, 48, 23-48.
- Schwartz, S. H. (2004): "Mapping and Interpreting Cultural Differences around the World". In H. Vinken, J. Soeters and P. Ester (Eds.), *Comparing Cultures, Dimensions of Culture in a Comparative Perspective*, Brill, Leiden, The Netherlands.
- Schwartz, S. H. (2006a): "Les Valeurs de Base de la Personne : Théorie, Mesures et Applications", *Revue Française De Sociologie*, 47(4), 929-968.
- Schwartz, S. H. (2006b): "A theory of Cultural Value Orientations: Explication and Applications", *Comparative Sociology*, 5(2-3), 137-182.
- Schwartz, S. H. (2008): *Cultural Value Orientations: Nature and Implications of National Differences*, Publishing House of SU HSE, Moscow.
- Schwartz, S. H., and Ros, M. (1995): "Values in the West: A theoretical and Empirical Challenge to the Individualism-Collectivism Cultural Dimension", *World Psychology*, 1, 99-122.
- Shane, S. (1993): "Cultural Influences on National Rates of Innovation", *Journal of Business Venturing*, 8(1), 59-73.
- Shane, S., Kolvereid, L., and Westhead, P. (1991): "An Exploratory Examination of the Reasons Leading to New Firm Formation across Country and Gender", *Journal of Business Venturing*, 6(6), 431-446.

- Sternberg, R., and Wennekers, A. R. M. (2005): "Determinants and Effects of New Business Creation Using Global Entrepreneurship Monitor Data", *Small Business Economics*, 24(3), 193-203.
- Tang, L., and Koveos, P. E. (2008): "A Framework to Update Hofstede's Cultural Value Indices: Economic Dynamics and Institutional Stability", *Journal of International Business Studies*, 39(6), 1045-1063.
- Triandis, H. C. (1995): *Individualism & collectivism*, Westview, Boulder, CO; Oxford.
- van Stel, A., Carree, M., and Thurik, R. (2005): "The Effect of Entrepreneurial Activity on National Economic Growth", *Small Business Economics*, 24(3), 311-321.
- van Stel, A., and Storey, D. J. (2004): "The Link Between Firm Births and Job Creation: Is there a Upas Tree Effect?", *Regional Studies*, 38(8), 893-909.
- van Stel, A., Wennekers, A. R. M., Thurik, A. R., and Reynolds, P. (2003): *Explaining Nascent Entrepreneurship Across Countries. SCALES-paper N2003-01*, EIM Business and Policy Research, Zoetermeer.
- Verheul, I., Wennekers, A. R. M., Audretsch, D. B., and Thurik, A. R. (2002): "An Eclectic Theory of Entrepreneurship". In D. B. Audretsch, A. R. Thurik, I. Verheul and A. R. M. Wennekers (Eds.), *Entrepreneurship: Determinants and Policy in a European-US Comparison*, Kluwer Academic Publishers, Boston/ Dordrecht.
- Wennekers, A. R. M., Thurik, R., van Stel, A., and Noorderhaven, N. (2007): "Uncertainty Avoidance and the Rate of Business Ownership Across 21 OECD Countries, 1976-2004", *Journal of Evolutionary Economics*, 17(2), 133-160.
- Wennekers, A. R. M., Uhlaner, L. M., and Thurik, A. R. (2002): "Entrepreneurship and its Conditions: A Macro Perspective", *International Journal of Entrepreneurship Education*, 1(1), 25-64.
- Wennekers, A. R. M., van Stel, A., Thurik, A. R., and Reynolds, P. D. (2005): "Nascent Entrepreneurship and the Level of Economic Development", *Small Business Economics*, 24(3), 293-309.
- Werts, C. E., Linn, R. L., and Joreskog, K. G. (1974): "Intra Class Reliability Estimates: Testing Structural Assumptions", *Educational and Psychological Measurement*, 34(1), 25-33.